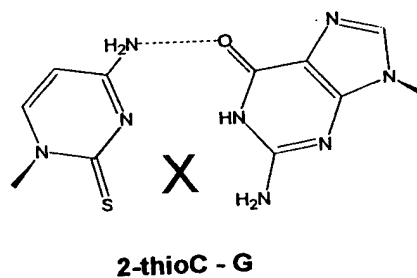
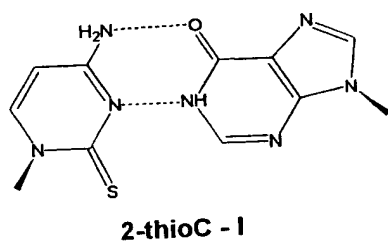
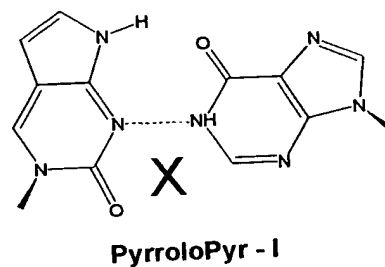
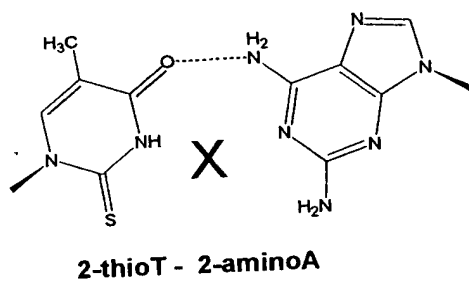
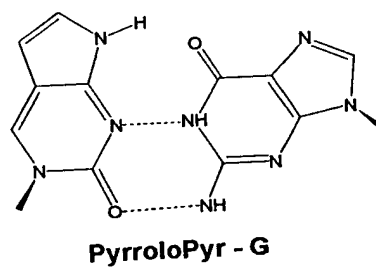
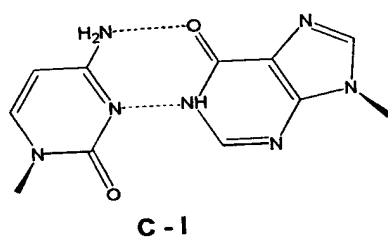
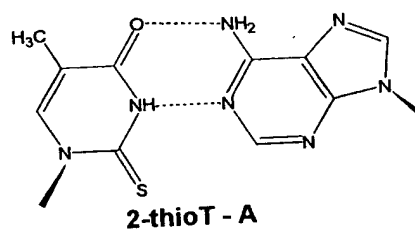
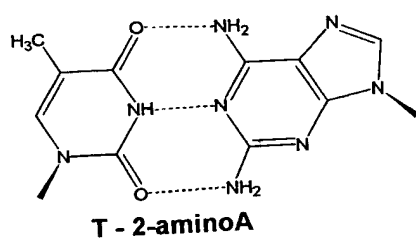
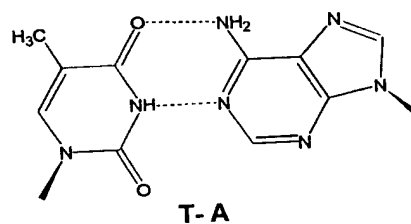
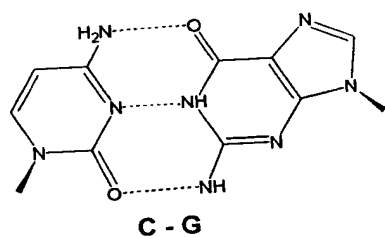


**Figure 1**



66369-1185260

Figure 2

A

5' -CGATAGGCTCTG →  
3' -GCTATCCGAGACCCTGACTTGACACCTGTT-5'

B

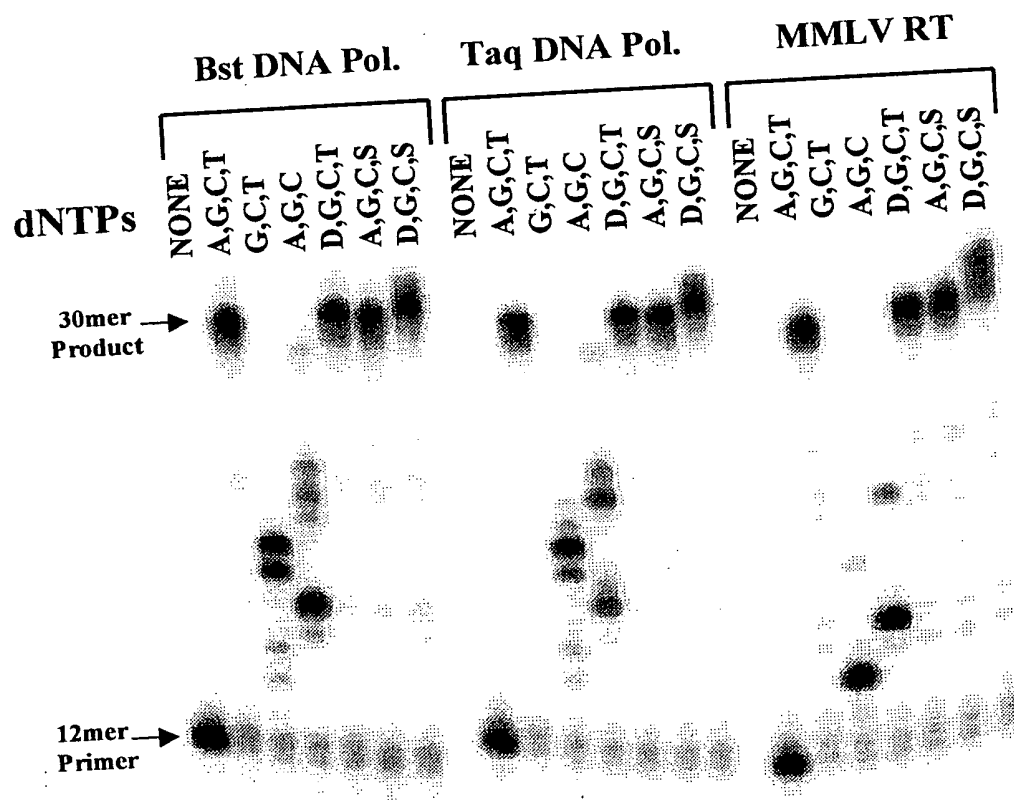
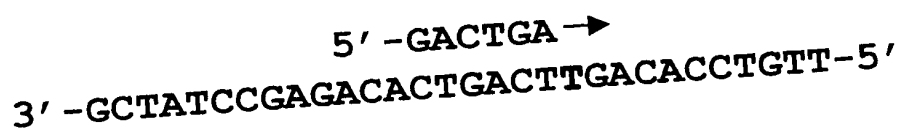
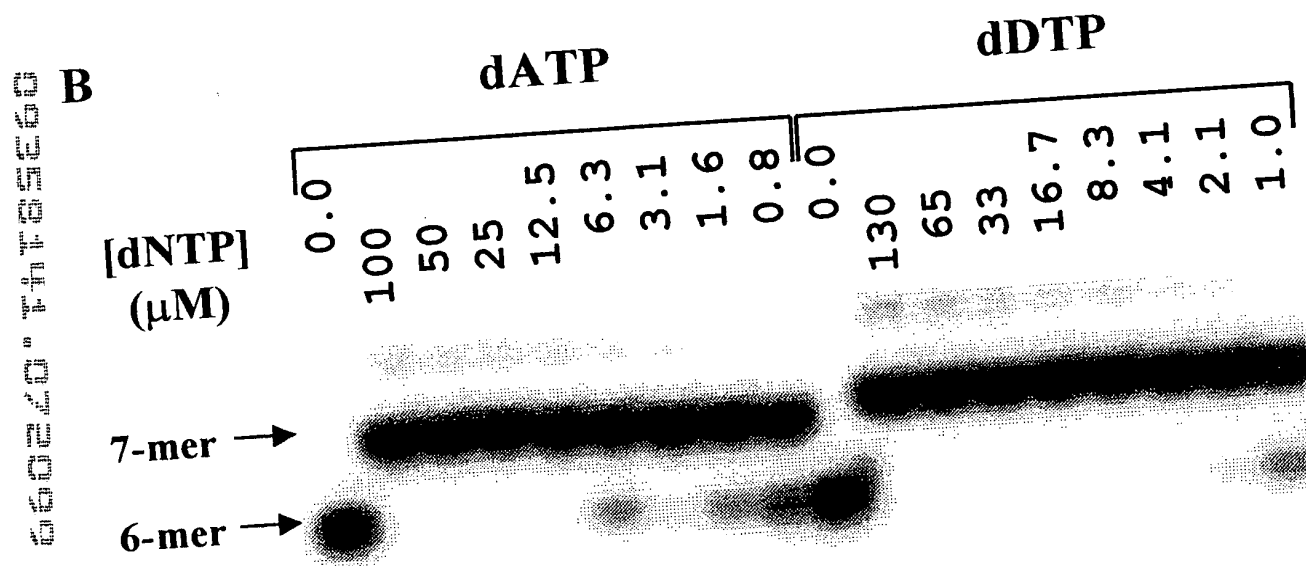


Figure 3

A



B



C

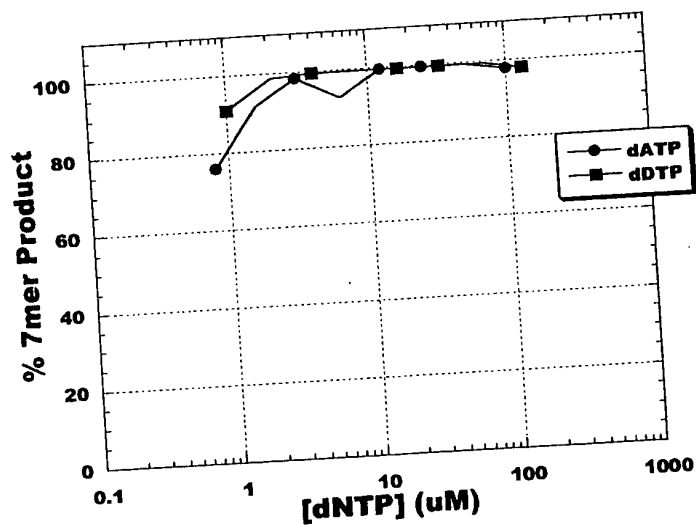
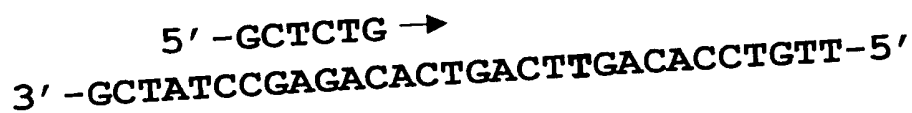
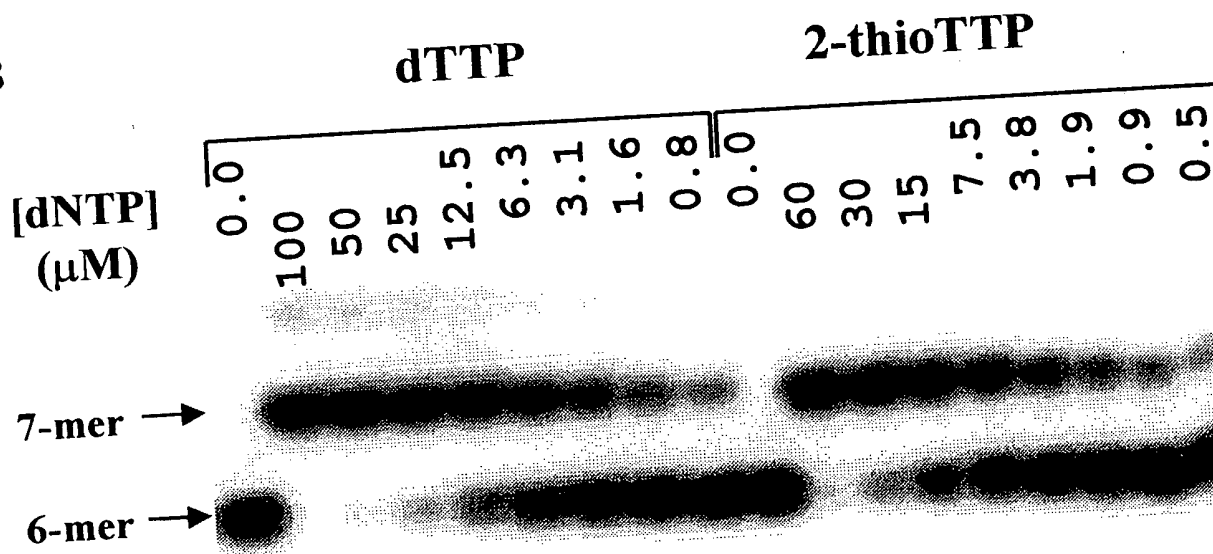


Figure 4

A



B



C

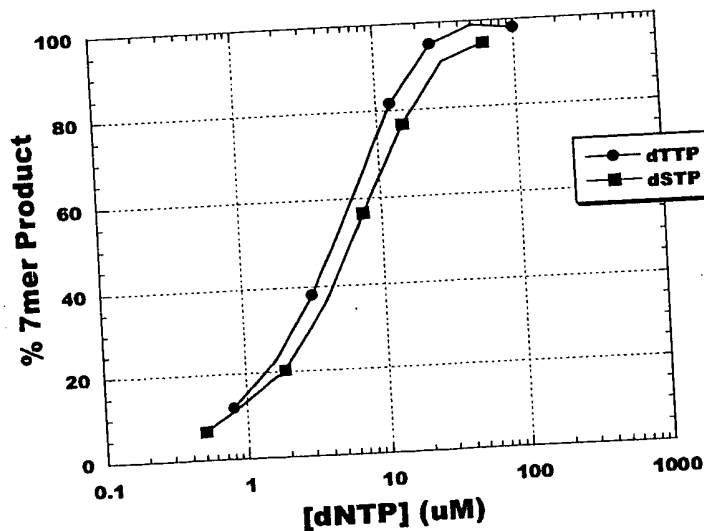


Figure 5

A



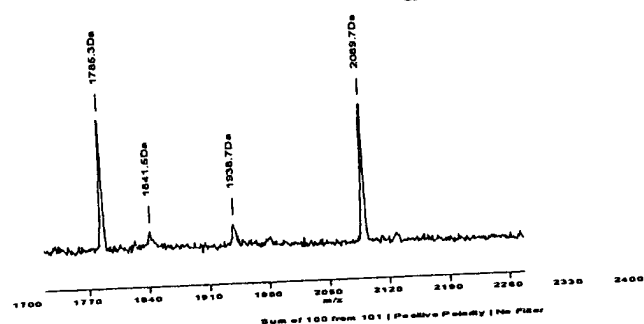
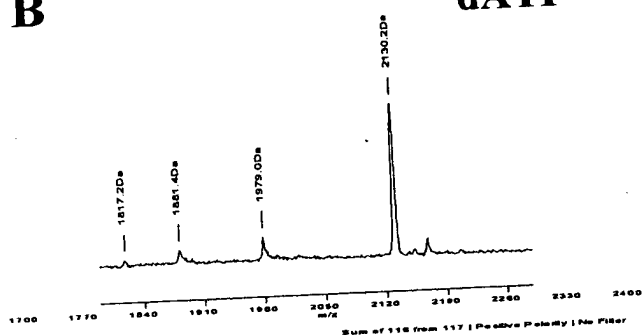
Sum of 155 from 155 (Positive Polarity) (No Filter)

Sum of 143 from 143 (Positive Polarity) (No Filter)

B

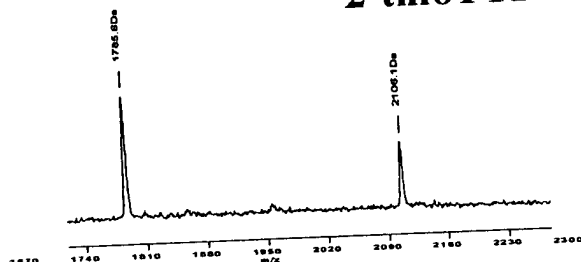
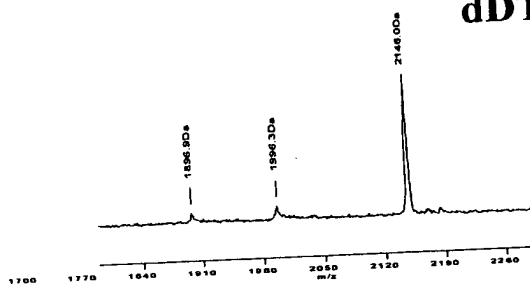
dATP

dTTP



dDTP

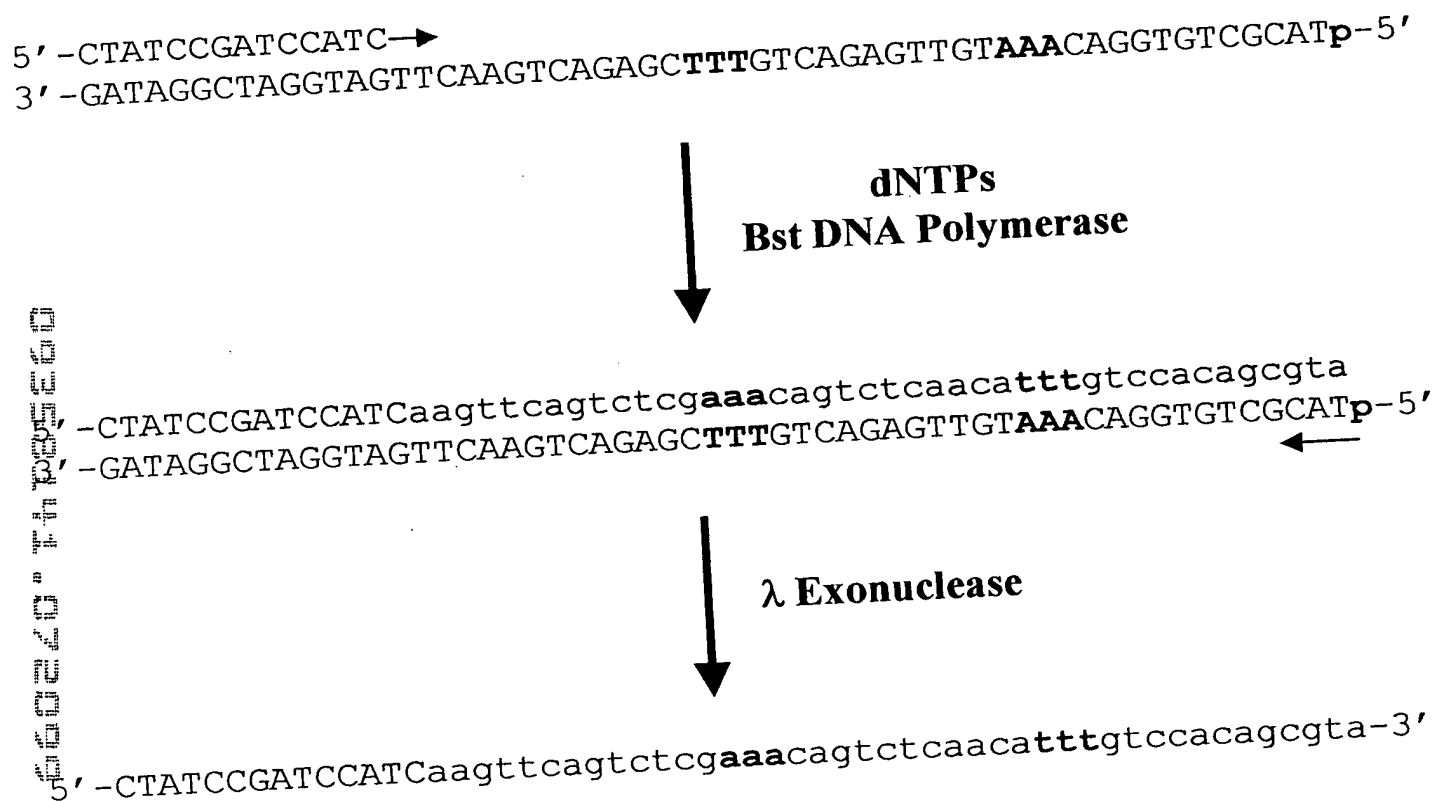
2-thioTTP



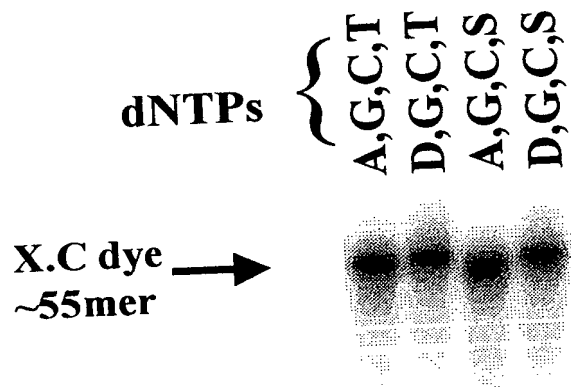
C

Extension Nucleotide	X-mer	Predicted m/z (Positive Ion)*	Measured m/z (Positive Ion)	Predicted $\Delta$ m/z	Measured $\Delta$ m/z
None	GACTGA	1816.3	nd	--	--
dATP	GACTGAA	2129.5	2130.2	+15.0	+15.8
dDTP	GACTGAD	2144.5	2146.0		
None	GCTCTG	1783.2	1785.4 $\pm$ 0.2	--	--
dTTP	GCTCTGT	2087.4	2089.7	+16.0	+16.4
d-2-thio-TTP	GCTCTGS	2103.4	2106.1		

**Figure 6**



**Figure 7**



B.P dye →  
~12mer

# Figure 8

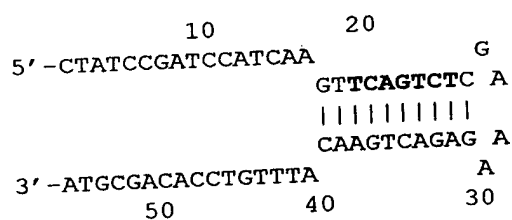
## HP21AT

$\Delta G^\circ = -12.3$  kcal/mole at 37 °C

$\Delta H^\circ = -82.5$  kcal/mole

$\Delta S^\circ = -226.3$  cal/ (°K·mol)

$T_m = 91.4^\circ\text{C}$



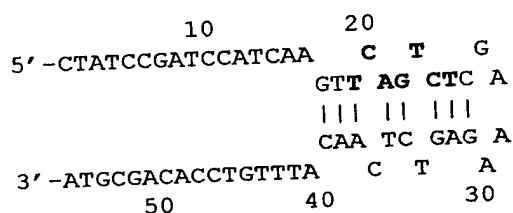
## HP26AT

$\Delta G^\circ = -3.8$  kcal/mole at 37 °C

$\Delta H^\circ = -41.2$  kcal/mole

$\Delta S^\circ = -120.5$  cal/ (°K·mol)

$T_m = 68.8^\circ\text{C}$



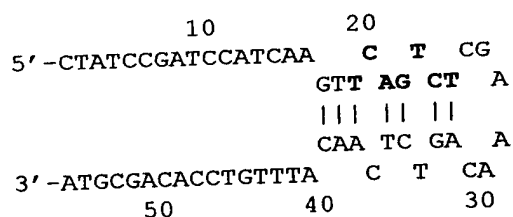
## HP28AT

$\Delta G^\circ = 0.1$  kcal/mole at 37 °C

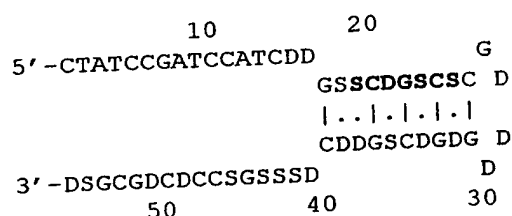
$\Delta H^\circ = -27.4$  kcal/mole

$\Delta S^\circ = -88.6$  cal/ (°K·mol)

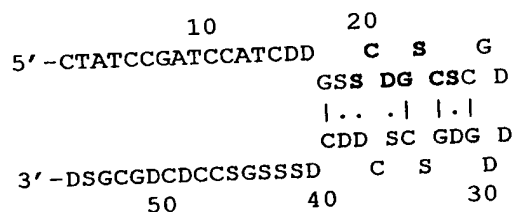
$T_m = 36.1^\circ\text{C}$



## HP21DS



## HP26DS



## HP28DS

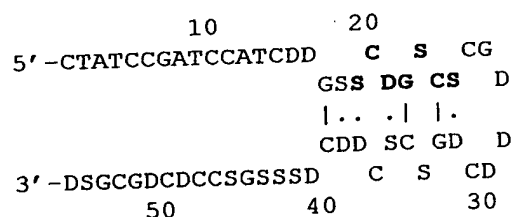
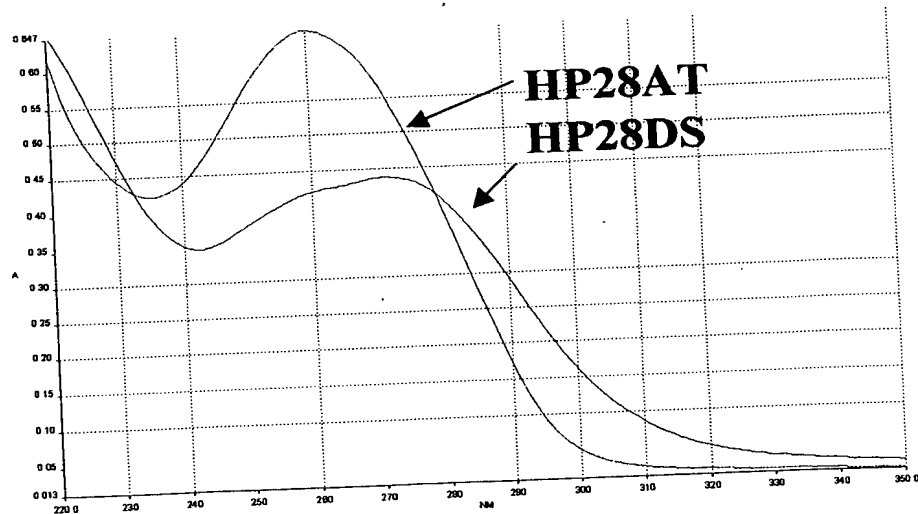
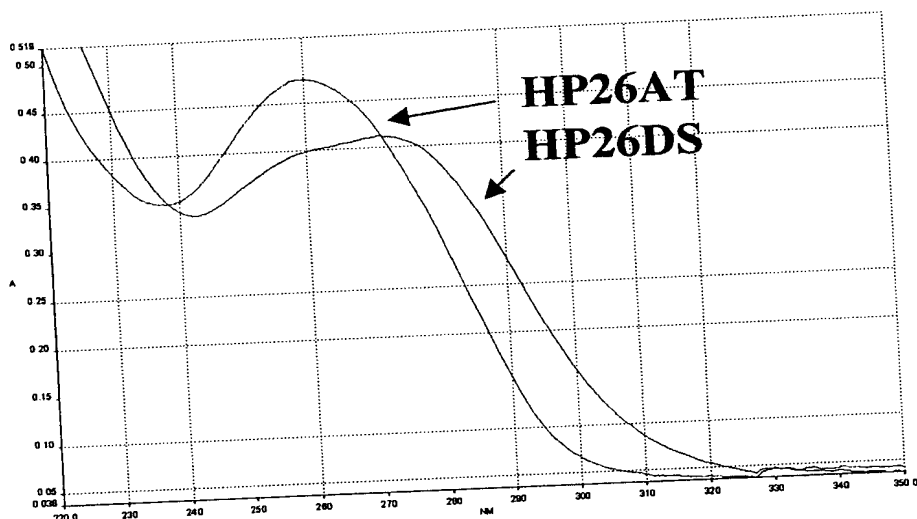
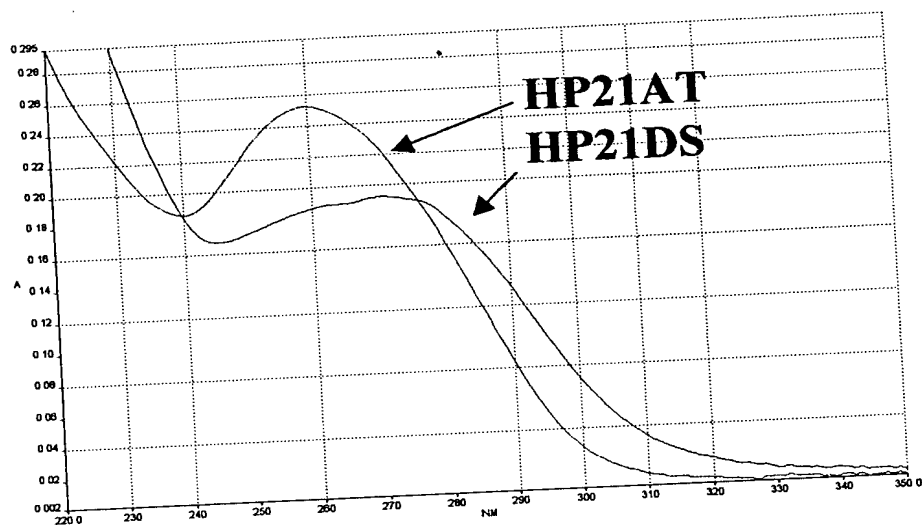




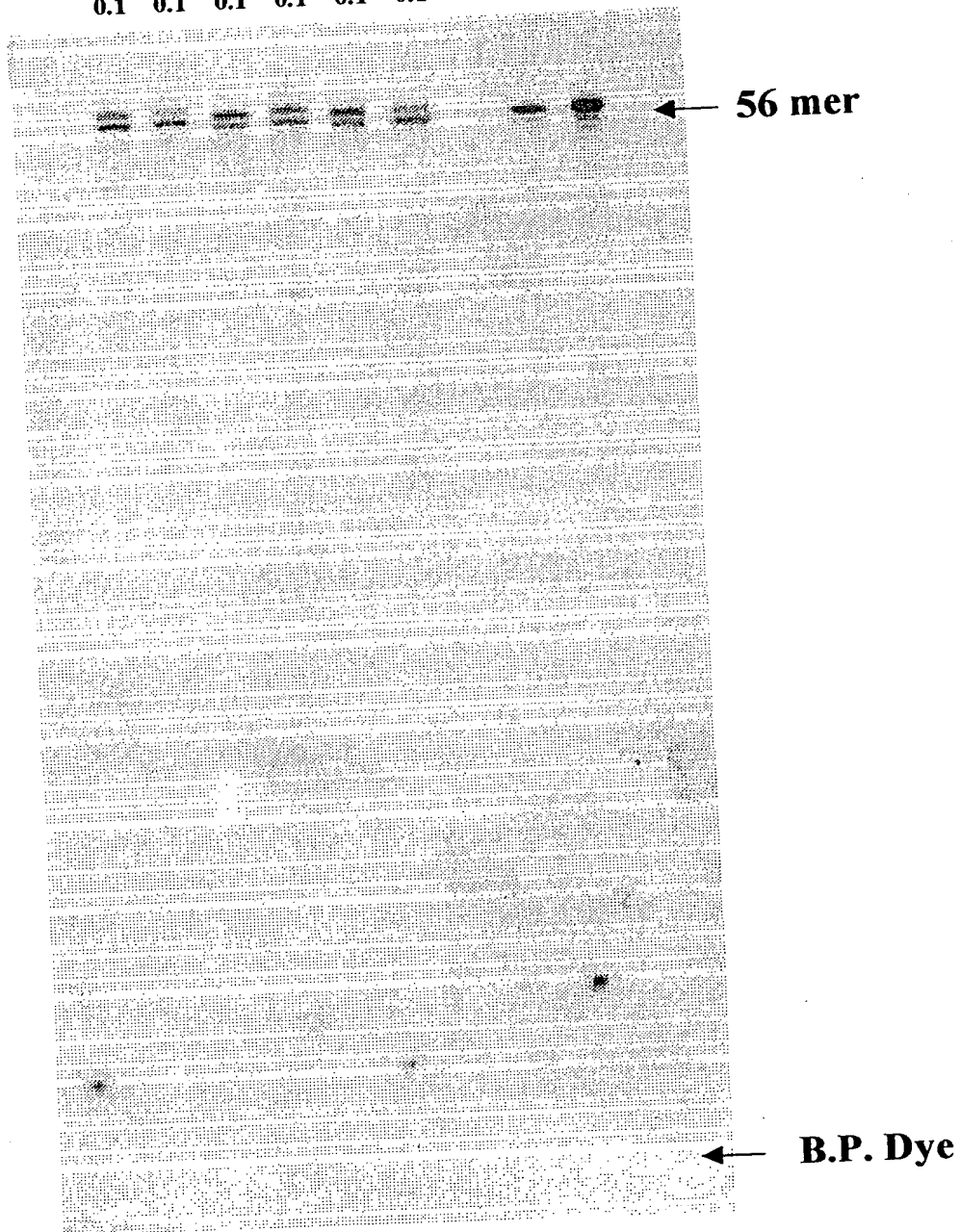
Figure 9



66220" 4735660

Figure 10

HP21		HP26		HP28		HP21		Template DNA					
A	T	D	S	A	T	D	S	A	T	D	S	0.1	0.2 (ug)
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2



10% 7M Urea PAGE

60000 40000 20000

# Figure 11

HP21  
Target

← AGTCAGA 7mer-2169      ← CAGGTG 6mer-2978  
 ← GTCAGA 6mer-543      |||||  
 |||||  
 5'-CTATCCGATCCATCAAGTTCAGTCTCGAAAGAGACTGAACATTTGTCCACAGCGTA-3'

HP26  
Target

← AGTCAGA 7mer-2169      ← CAGGTG 6mer-2978  
 ← GTCAGA 6mer-543      |||||  
 |||||  
 5'-CTATCCGATCCATCAAGTTCAGTCTCGAAAGAGTCTCAACATTTGTCCACAGCGTA-3'

HP28  
Target

← AGTCAGA 7mer-2169      ← CAGGTG 6mer-2978  
 ← GTCAGA 6mer-543      |||||  
 |||||  
 5'-CTATCCGATCCATCAAGTTCAGTCTCGAAACAGTCTCAACATTTGTCCACAGCGTA-3'

Tar2T  
Target

6mer-2978 ← CAGGTC      ← AGTCAGA 7mer-2169  
                              ← GTCAGA 6mer-543  
 |||||      |||||  
 5'-TTGTCCACAGTTCAGTCTCAGAGCCTATCG -3'

000220"TF5260

Figure 12

# 6-mer 543

Target	None			TARZT			HP21AT			HP21DS			HP26AT			HP26DS			HP28AT			HP28DS		
Time (hr)	3	6	24	3	6	24	3	6	24	3	6	24	3	6	24	3	6	24	3	6	24	3	6	24

7-mer →

6-mer →

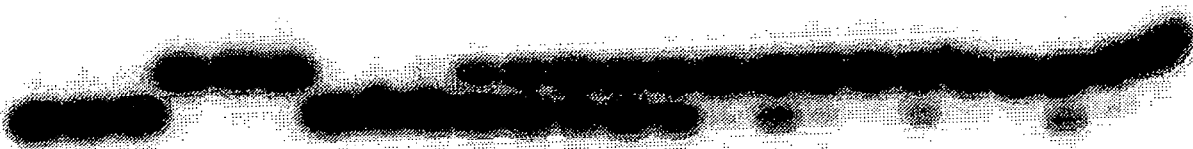


# 7-mer 2169

Target	None			TARZT			HP21AT			HP21DS			HP26AT			HP26DS			HP28AT			HP28DS		
Time (hr)	3	6	24	3	6	24	3	6	24	3	6	24	3	6	24	3	6	24	3	6	24	3	6	24

8-mer →

7-mer →



# 6-mer 2978

Target	None			TARZT			HP21AT			HP21DS			HP26AT			HP26DS			HP28AT			HP28DS		
Time (hr)	3	6	24	3	6	24	3	6	24	3	6	24	3	6	24	3	6	24	3	6	24	3	6	24

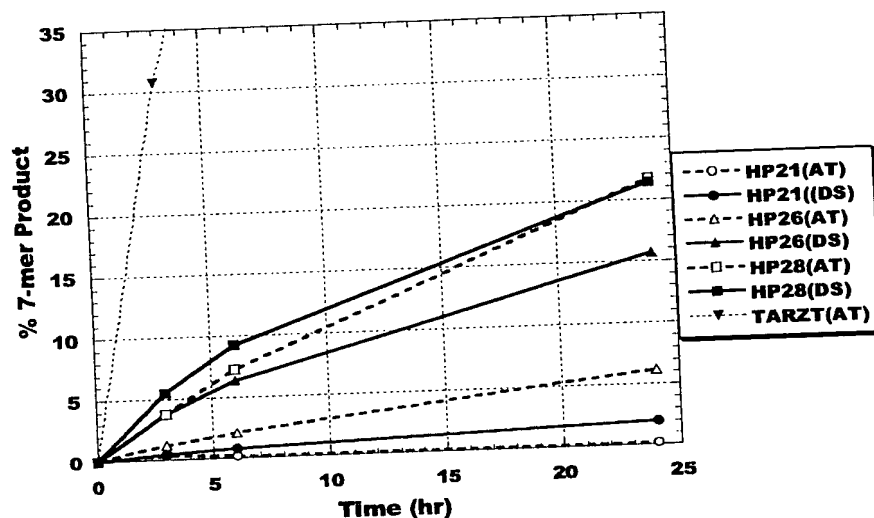
7-mer →

6-mer →

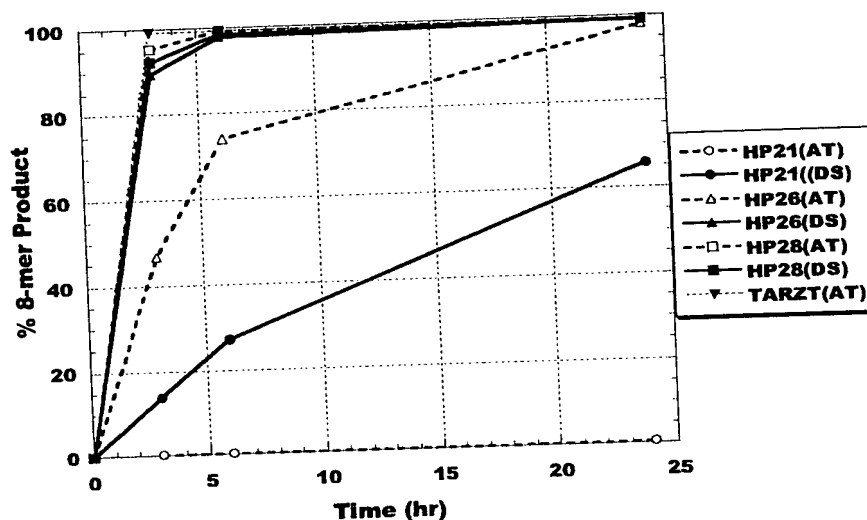


Figure 13

6mer-543



7mer-2169



6mer-2978

